War Related Illness & Injury Study Center
Public Health
Department of Veterans Affairs

INFORMATION ON MEFLOQUINE (LARIAM)

A Resource for Veterans, Service Members, and Their Families

Introduction

This fact sheet provides readers with information about Mefloquine, a drug that had been taken in the past by service members to prevent malaria. Even though the drug is no longer being given to service members, some Veterans and their families have questions about having taken it in the past.

Note: *Lariam is the brand name for the drug Mefloquine– they are exactly the same medication. Both the generic drug (Mefloquine) and the brand name drug (Lariam) work the same way and have exactly the same impact on a person who takes it.*

What is Malaria?

Malaria can be a serious and sometimes fatal disease caused by the malarian parasite that is widespread in tropical and semitropical developing countries. Mosquitoes become infected with the parasite and then spread malaria to humans by biting them. You cannot get malaria from casual contact with people who are infected with malaria. Because the parasite that causes malaria gets into the blood stream when malaria infects an individual, malaria can be transmitted through a blood transfusion, organ transplant, or by sharing needles or syringes contaminated with blood. Malaria may also be transmitted from a mother to her fetus before or during delivery. Patients with malaria typically get very sick with high fevers, shaking, chills, and flu-like illness. Malaria can be a fatal disease, but illness and death from malaria are largely preventable.

Malaria is Preventable

Since malaria can cause severe illness and even death, the most effective way to deal with the disease is to prevent it. There are ways to prevent malaria without taking medication. These include use of mosquito netting and insect repellent to keep mosquitoes away from the body. Health care professionals agree that medication offers the most effective form of prevention.

Use of Mefloquine in the Military

Mefloquine has been given to military personnel for protection from the disease malaria since it was approved by the FDA in 1989, including those serving in Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF), although it was used infrequently during these conflicts and not at all in Iraq since February 2005.

Note: *Mefloquine is no longer the drug of choice for prevention from malaria. In 2009, the Army Surgeon General banned the use of Mefloquine from the battlefield. See below.*

Mefloquine works by killing the parasite that causes malaria. Because the medication can remain in the body for some time after it is taken, it does not have to be taken daily (and was thus the most convenient drug for service members to take to protect from malaria). It had to be taken once a week for the entire time that a person remains in an infected area and for four weeks after leaving the high risk area, to ensure protection from the disease.

Prior to prescribing Mefloquine to an individual, physicians need information about the individual's past medical history. People with certain medical conditions, such as heart disease and liver problems should not

be given Mefloquine. Also, people who have had an allergic reaction to Mefloquine in the past should not be given the drug. Anyone given Mefloquine is required to receive a copy of the medication guide created by the Food and Drug Administration (FDA) and the company that makes the drug. The guide discusses the risks and benefits of taking the drug to prevent malaria and the side effects. Military unit leaders are advised by the Department of Defense of this requirement.

What are the Possible Side Effects of Mefloquine?

All medications have side effects so it is important to understand the benefits and risks of taking versus not taking any particular medication. The most commonly reported side effect of Mefloquine is vomiting. Other commonly reported side effects are nausea, loose stools or diarrhea, abdominal pain, dizziness or vertigo, loss of balance, and neuropsychiatric events such as headache, somnolence (sleepiness), and sleep disorders (insomnia, abnormal dreams). These side effects are usually mild and do not cause people to stop taking the medicine. There are also other side effects associated with Mefloquine.

- In 2008, a safety review of Mefloquine conducted by the FDA identified some cases of pneumonitis (inflammation of the lung tissue) or eosinophilic pneumonia (a disease in which causes disruption of the normal air flow into the lungs) were associated with the use of Mefloquine. The product label has been updated to reflect this new safety information.

- Mefloquine may also cause an unacceptably high rate of psychiatric symptoms. These symptoms include anxiety, paranoia or feelings that people are against them, hallucinations (seeing or hearing things that are not there, for example), depression, unusual behavior, or feeling disoriented. There have been reports that in some patients these side effects continue after Mefloquine is stopped.

- Some service members and their families have raised concern about the possibility of a link to suicide or homicide. The reports connecting Mefloquine with suicide and homicide are extremely rare. A scientific link between taking the drug and committing suicide or murder has not been proven although there is growing literature that there is such a link.

- Patients with a history of psychiatric illness may be vulnerable to Mefloquine-related psychiatric symptoms, or developing psychosis, as a result of taking the drug, and the package insert recommends against prescribing it to patients with a history of psychiatric problems including depression, generalized anxiety disorder, psychosis, schizophrenia or any other major psychiatric disorder.

- Mefloquine can stay in the body for up to four months after an individual stops taking it– this is one of the reasons why it is so effective in preventing the disease malaria. Once the drug leaves the body, the possibility of having physical side effects is rare. People with psychiatric conditions who have been given the drug might have worse side effects and feel symptoms continue to worsen after they stop taking the drug. Current research shows that instances of long term health effects from the drug Mefloquine are rare.

Based on the rate of metabolism of the drug, it is completely out of the body in four months; it is therefore unlikely that symptoms will last long term. If you have taken Mefloquine in the past, have stopped taken the medication and are still concerned about side effects, you should report them to your primary care provider. When you make an appointment to see your doctor, he or she will ask you many questions about your health. It's important to talk about your symptoms in relation to the time period that you took Mefloquine and the amount that you took, which varies according to the amount of time you spent in a high risk malaria area. Your doctor may order additional testing to further assess and treat your reported symptoms. Symptoms should be cared for and treated on a case-by-case basis.

Army's Drug of Choice for Malaria Prevention

In February 2009 the Army Surgeon General reinforced an important directive that made Doxycycline the drug of choice for military use in areas where Mefloquine is equally effective for prevention from malaria. The original policy was written in July 2004.

- The policy reflects concerns about side effects and concerns over prescription of Mefloquine to soldiers who should not take it (for example, those with TBI or depression).
- Mefloquine should only be given to personnel who cannot take Doxycycline and do not have any known reason not to take Mefloquine.
- Mefloquine should not be given to Soldiers with recent history of Traumatic Brain Injury (TBI) or who have symptoms from a previous TBI. Malarone would be the treatment of choice for these service members who cannot take Doxycycline or Mefloquine.
- This directive goes on to mandate that the wallet card provided with the Mefloquine Medication Guide must be given to each person prescribed Lariam or generic forms of Mefloquine.
- To read more about the drugs Doxycycline and Malarone please visit the medication guides on the Web sites for the manufacturers of these drugs (see right column).
  - **Doxycycline:**
    media.pfizer.com/files/products/uspi_vibramycin_vibra-tabs.pdf
  - **Malarone:**
    us.gsk.com/products/assets/us_malarone.pdf

For more information, you may visit the Centers for Disease Control and Prevention (CDC) Web site which gives an overview of reasons for considering or avoiding certain drugs for the prevention of malaria at this link:

www.cdc.gov/malaria/control_prevention/drug_avoidance.htm

The information contained in this sheet was obtained in part from the sources listed below. It was developed by a group of health care providers with special concern about deployment-related health concerns. For more information you can see the following Web sites:

REFERENCES

Center for Disease Control
www.cdc.gov/malaria/faq.htm

US Army Center for Health Promotion and Preventative Medicine
chppm-www.apgea.army.mil/dmis/documents/MefloquineTabletsFeb04DMIS.pdf

CDC– Reasons for considering or avoiding certain drugs for the prevention of malaria
www.cdc.gov/malaria/control_prevention/drug_avoidance.htm

Deployment Health Clinical Center– Fact Sheet
www.pdhealth.mil/downloads/Mefloquine_Service_Member_04122004.pdf

Deployment Health Clinical Center– Web Resources
www.pdhealth.mil/Mefloquine.asp#research

Deployment Health Clinical Center– Surgeon General Memorandum
www.pdhealth.mil/downloads/DASG_Memorandum.pdf

FDA– US Food and Drug Administration
www.fda.gov/SafetyMedWatch/SafetyInformation/SafetyAlertsforHumanMedicalProducts/ucm153319.htm

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